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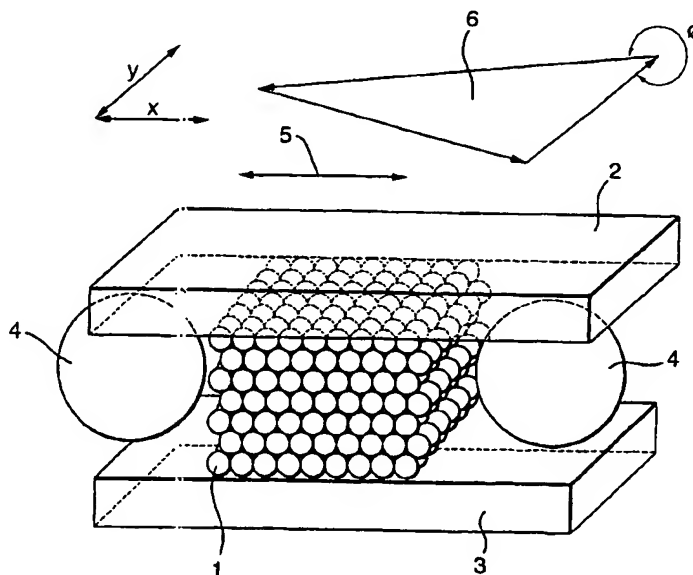
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(54) Title: COLLOIDAL PHOTONIC CRYSTALS



(57) Abstract: A method of growing robust large area colloidal photonic crystals and devices produced thereby. A suspension of monosized colloidal spheres (1) is subjected to a composite shear (6) by applying a sequential set of shearing forces. The crystalline layers within the colloid experience shearing forces with components in both x and y directions, forcing the colloid into a single face-centred-cubic structure in preference to a twinned face-centred-cubic structure. The method may also comprise the use of a dispersion medium which is capable of undergoing a controllable phase change from a liquid phase to a solid phase. The crystal may be fixed into a single face-centred cubic structure.



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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 139 611 A (PUSEY PETER N ET AL) 18 August 1992 (1992-08-18) the whole document	3,6-11, 32,33
X	& GB 2 260 714 A (PUSEY) 28 April 1993 (1993-04-28) cited in the application	
A	FROLOV S V ET AL: "Laser-like emission in opal photonic crystals" OPTICS COMMUNICATIONS,NL,NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, vol. 162, no. 4-6, 15 April 1999 (1999-04-15), pages 241-246, XP004165466 ISSN: 0030-4018	
A	EP 0 168 988 A (UNIV PITTSBURGH) 22 January 1986 (1986-01-22)	

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>KIM E ET AL: "TWO- AND THREE-DIMENSIONAL CRYSTALLIZATION OF POLYMERIC MICROSPHERES BY MICROMOLDING IN CAPILLARIES"</p> <p>ADVANCED MATERIALS, VCH VERLAGSGESELLSCHAFT, WEINHEIM, DE, vol. 8, no. 3, 1 March 1996 (1996-03-01), pages 245-247, XP000558255</p> <p>ISSN: 0935-9648</p>	
A	<p>YOSHINO K ET AL: "THE OPTICAL PROPERTIES OF POROUS OPAL CRYSTALS INFILTRATED WITH ORGANIC MOLECULES"</p> <p>JAPANESE JOURNAL OF APPLIED PHYSICS, JP, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS. TOKYO, vol. 36, no. 6A, PART 02, 1 June 1997 (1997-06-01), pages L714-L717, XP000727779</p> <p>ISSN: 0021-4922</p>	